DCF™ Optimized Rack System

Selection Guide

EMERSON™
Network Power

DCF™ Optimized Rack System:

Optimized Design, Optimized Delivery, Optimized Value

A Rack System Designed to Meet The Challenges Your Data Center Faces Today

Your mission-critical networks are carrying an ever-increasing amount of voice, data and video. Looming on the horizon is a critical mass of VoIP, high speed access, wireless applications and increasing demand for blade server deployment.

The DCF optimized rack system from Emerson Network Power integrates your computing hardware, power management technologies and peripherals in your data center. It gives superior design and flexibility, allowing optimal data center equipment performance and easy installation.

DCF Rack is UL certified 2416

DCF Rack 42U

DCF Rack 24U

Flexibility:

- Available in nine standard sizes, to meet site needs
- Compatible with Emerson Network Power Rack PDUs, Liebert® rackmount UPS, Aisle Containment and Liebert MB™ modular busway — all from a single source
- Factory installation of rack PDUs, for fast deployment
- Tool-less accessories simplify cable management, airflow management and component mounting
- Static load capacity up to 3000lbs/1,363kg
- Simple integration of power, cooling and monitoring equipment

Higher Availability:

- 75% front and rear door perforation provides maximum airflow to internal equipment
- Easy access to and management of equipment
- Front and rear locks for security
- Fast on-site deployment
- Ergonomic
- Airflow and perforation
- Cable Management

Lowest Total Cost of Ownership:

- Easy installation saves time and money: lift off hinges, dual side panels, 19” rail adjustment, U markings on 19” rails, low profile casters, tool-less accessories
- Excellent value for features, durability and price
- Integral part of the total data center solutions from Emerson Network Power saves time and money on configuration and integration

Improve Data Center Efficiency With A Solid Foundation

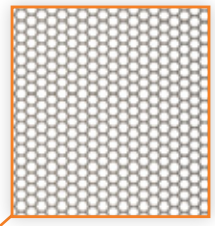
Welded Steel Construction

Roof Top Ready for Cabling

Removable opening for cable entry — ready for front/rear/side cabling. Can accomodate over 2500 Cat 5e cables.

75% Perforation On Doors

Optimal door perforation allows greater airflow through the cabinet, reducing heat buildup.



Tool-less Cable Management

requires just inserting and twisting the tool-less accessories on 19" vertical mounting rail.

Integrated 19" rail alignment.

Insures 19" rails are positioned correctly without measuring.

Low Profile casters

Low profile casters allow 42U racks access thru a standard doorway

Split, Locking Side Panels

For quick and easy installation and maintenance. Locks provide security.

Specifications – DCF™ Rack

Part Number	U	Height mm (in)	Width mm (in)	Depth mm (in)
F4611	24	1200 (47.2”)	600 (23.6”)	1100 (43.3”)
F2611	42	2000 (78.1”)	600 (23.6”)	1100 (43.3”)
F2612	42	2000 (78.1”)	600 (23.6”)	1200 (47.3”)
F2811	42	2000 (78.1”)	800 (31.4”)	1100 (43.3”)
F2812	42	2000 (78.1”)	800 (31.4”)	1200 (47.3”)
F8611	48	2250 (88.6”)	600 (23.6”)	1100 (43.3”)
F8612	48	2250 (88.6”)	600 (23.6”)	1200 (47.3”)
F8811	48	2250 (88.6”)	800 (31.4”)	1100 (43.3”)
F8812	48	2250 (88.6”)	800 (31.4”)	1200 (47.3”)

Standard Features

- Single perforated locking front door
- Split rear door, locking
- Split side panels, locking
- High density cable entry roof (2500+ cat 5 cables)
- Low profile caster and leveling feet
- 2 Sets 19” EIA rails
- 2 Full height rack PDU/ cable management brackets
- Hardware Kit (Qty 50 M6 Cage Nuts and Screws)
- Bolt down brackets
- Keys
- Central grounding point
- Tool-less accessories available
- Liebert MB attachment option
- UL 2416 approval

Air Flow Management

Blank Panel

19” Tool Less Blanking Panel

A frequently over looked component in air flow management, blanking panels allow you to close unused U space. This forces incoming cool air to pass through active components with pull fans already installed in your cabinet. Available in 1U and 2U.

Part number	Description
010200087	1U Plastic Tool Less Blanking Panel; Box of 10
010200088	2U Plastic Tool Less Blanking Panel box of 5

Vertical Filler Panel Kit

Full height Vertical filler panels that mount to outside edge of the 19” rail and extend to the plane of the side panel. The vertical filler panels for the DCF Optimized rack utilize 2 half height panels per side. Each kit is enough for 1 cabinet. 42U panel has 1 1U cut out per panel with brush strip that can be used for cable pass through. 48U panel has 2 1U cut outs with brush strip in the top and 1 1U cut out with brush in the bottom.

Part number	Description
546074G1L	42U x 800mm wide
546281G1L	48U x 800mm wide

Air Diverter for IT Switch

Captures and directs all of the hot exhaust air out the rear of the rack and into the hot aisle when a side breathing switch is used.

Available in 4U, 12U, 15U, and 21U

Consult your switch manufacturers airflow specifications before applying.

Part number	Description
546659G1L	4U Air Diverter
546659G2L	12U Air Diverter

Part number	Description
546659G3L	15U Air Diverter
546659G4L	21U Air Diverter

19” Fixed Tool less Shelf

19” adjustable vented shelves provides added versatility and accessibility with load rating of 275lbs (135kg).

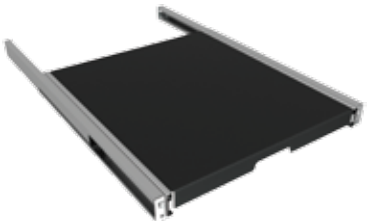
Features

- Adjustable Depth for installation
- 23.5” (570mm) to 46” (1168mm)
- Surface Area 17.25” (438mm) W x 23.5” (570mm) D
- 1U Tool Less mounting shelf

Materials / Finish

- High grade cold rolled steel 1.5 mm thickness
- Powder coat finish
- Standard color is RAL 7021 black grey

Part number	Description
002185000	19” Fixed Tool Less Shelf; 275lbs load rating

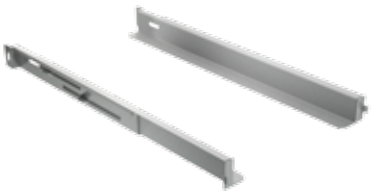


Telescopic Shelf

19” Telescopic Shelves

A high quality bearing slide mechanism provides smooth and convenient action for our shelves. The mounting kits are installed to the inside flange of the 19” rails. Depths range from 22.3” (566mm) to 46.0” (1168mm). Supports loads up to 110lbs (50kg)

Part number	Description
535809G1	Telescopic Shelf 110lb load rating



“L” Shaped depth adjustable support Rails

When additional support is needed for heavy loads, our support rails provide a suitable option. Depth Adjustable, the rails mount into the 19” rail side flanges and can support loads up to 110lbs (50kg)

Part number	Description
542777G1L	Support Rail Depth adjustable; load rating 110lbs

Shelves and Support Brackets

2U Lockable Drawer

2U drawer for lockable storage of documents or light components . Mounts on 19” rails. Max Capacity 30lbs (13.6kg).

Part number	Description
011139278L	19” 2U Fully enclosed and lockable drawer

RPCBDM Bracket

Bracket attaches to the perf door and holds the RPCBDM Display so it can be viewed without having to open the rack doors.

Part number	Description
538619G1L	RPCBDM bracket to mount BDM display to perforated door

XDV Mounting Bracket

Allows the XDV product line to be mounted properly on top of the rack.

Part number	Description
546080G1L	600W XDV mounting bracket
546079G1L	800W XDV mounting bracket

Cable Management

19” Cable Routing Panel with D Rings

19” rack mounted cable routing panel with D rings provide the solution to those loose cables in the front or rear of your rack. Panels available in 1U height.

Part number	Description
011171448	19” Cable Routing Panel with D rings

1U Metal Blanking panel with Brush Strip

- Can be used as a blanking panel and allows for cable pass thru
- Color: RAL7021, Black
- Supplied in kit of 2pcs

Part number	Description
542190G1L	1U Metal Blanking Panel w/ Brush

Tool Less Cable Management – Lobster Claw

¼ Turn tool-less cable management piece offers the ultimate in flexibility in cable management. These can be installed on the outside edge of the 19” rail or on the PDU/Cable Management rail.

Part number	Description
002185050	Pack of 10 Lobster Claw
002185070	Pack of 100 Lobster Claw

19” Cable Trough

19” 1U rack mount cable trough that mounts on the 19” rails for effective horizontal routing of cables.

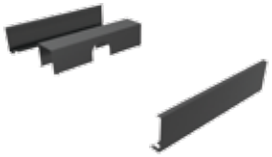
Part number	Description
050400558	19” Cable Trough

Tool Less Cable Management – Velcro Strap

¼ Turn tool-less cable management piece offer the ultimate in flexibility in cable management. These can be installed on the outside edge of the 19” rail or on the PDU/Cable Management rail.

Part number	Description
002185060	Velcro Strap Pack of 10
002185080	Velcro Strap Pack of 100

Roof Mount Cable Management Kit



Roof mount cable management easily directs cables along the top of the row of racks. Includes front, center and rear piece.

Part number	Description
546273G1L	Roof mount cable management kit for 600W
546274G1L	Roof mount cable management kit for 800W

Roof Mount Horizontal Cable Management Kit

Roof mount cable management easily directs cables along the top of the racks. The horizontal cable management piece runs front to rear on each end of the row.

Part number	Description
546343G1L	Horizontal cable mgmt kit for 1100mm deep cabinet. Includes 2 pieces
546344G1L	Horizontal cable mgmt kit for 1200mm deep cabinet. Includes 2 pieces

Cable Management / Fans / Additional Accessories

Horizontal Cable Manager

Horizontal Cable Manager
Mounts on the EIA rails to easily manager cables.
Available in 1U and 2U.

Part number	Description
548784P1	1U Horizontal Cable Manager
548785P1	2U Horizontal Cable Manager

Vertical Cable Management Finger System - 18U

Allows for the passing of cables from rack to rack keeping the same U location.Comes in a Kit of 2 18U finger sections.

Part number	Description
010200078	Kit of (2) 18U Vertical Fingers includes mounting hardware

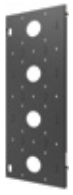
Cable Cover for Vertical Cable Fingers

Cover snaps on the cable fingers section to hide cables.

Part number	Description
546545P1	Cable cover for vertical cable manager 600 to 800 W rack configurations
546547P1	Cable cover for Vertical Cable Manager 800 to 8000W rack configurations

Back Plane for Vertical Cable Fingers

Back Planes install on the back side of the Vertical Cable Finger and allows for cable pass thru.



Part number	Description
546550P1	Cable Backplane for Vertical cable Manager 600 to 800W rack configurations
546553P1	Cable Backplane for Vertical cable Manager 800 to 800W rack configurations

Fans

Fans for Top Cover.

Part number	Description
163796G1L	1000L Low Noise Fan
163796G3L	1000H High Ambient Fan

Additional Accessories Handle options

Part number	Description
546058G1L	Door Handle (1ea)
546059G1L	Door Combo Lock (1ea)
546060G1L	Keys (Set of 4 keys)

Cluster Gasketing Kit

Part number	Description
546078G1L	Gasketing that seals space between suited racks.

23" EIA Rail Spacing Kit

Kit allows the EIA rails on an 800mm wide DCF rack to be adjusted to 23" spacing in lieu of the standard 19" rail placement.

Part number	Description
548649G1L	23" EIA Rail Spacing Kit for 800W rack

Additional Accessories

DCF Bolt Down Brackets

*Included with shipment of rack. If you need additional brackets you can order under part # below. Can be used to secure rack to Data Center Floor.

Part number	Description
546268G1L	DCF Bolt Down Brackets (Set of 2)

Full Height PDU/Cable Mgmt Bracket

Each DCF rack ships with a qty 2 full height PDU/Cable mgmt bracket installed. You can order additional ship loose full height PDU/Cable mgmt brackets.

Part number	Description
546076G1L	42U 4” Full height PDU/Cable mgmt Bracket (1ea)
546077G1L	48U 4” full height PDU/Cable mgmt bracket (1 ea)

DCF Casters

*All racks include swivel casters. If you need to order additional casters please use part number below.

Part number	Description
546269G1L	DCF Casters (Set of 4)

Mounting Hardware

One set included with each rack. Set includes 50 ea M6 cage nuts, plastic cup washers with matching screws. (1) cage nut installation/removal tool.

If additional hardware is required order part number below.

Part number	Description
546189G1	DCF Mounting Hardware

Seismic Anchor Bracket

Part number	Description
548233G1L	DCF Seismic Anchor Bracket

Rack PDU (Power Distribution Units)

It is rare to have a rack discussion without also talking about the rack PDU. According to Data Center Users' Group™ findings, the average power consumption in the Enterprise Data Center is now approximately 8kW per rack, with projections to grow to 10kW per rack by 2012. In the Small to Medium Business space, (SMB) the average today is 6kW per rack. Couple this increased power density with various monitoring and control needs, and the issue of proper PDU selection becomes critical to effective Data Center infrastructure deployment.

The Emerson Network Power family of rack PDU features varying levels of monitoring and control. These PDUs offer choices of input phase, input/output ampacity and input/output voltage to provide you with the best solution for the application you are facing today, or foresee in the future.

Highest Standard Operating Temperature in the Industry:

Each rack PDU is rated for operation up to 55C/131F, delivering reliable performance in hostile back-of-the-rack environments.

Broadest Offering of Rack PDU:

Basic to adaptive solutions to fit any rack distribution needs.

Rugged Construction:

Engineered to be reliable and long lasting.

Note:
For more information on configuring a rack PDU to meet specific site needs, consult Emerson Network Power Rack PDU Systems Product Selection Guide (SL-20828)

Liebert® MPX™:
This Adaptive Rack PDU offers breakthrough, configurable/ modular power and management technology for the dynamic Data Center, where change in receptacle type and/or voltage may be foreseen over the upcoming years. This family offers products ranging from 1.9kW-14.4kw of output.

Liebert MPH™:
The Managed Rack PDU offers several levels of metering in addition to control capabilities with connected equipment. This family offers products ranging from 1.9kW to 8.6kW.

Knurr® DI-STRIP:
For Data Centers with basic distribution needs, the Basic Rack PDU delivers simple and expandable distribution in a robust package. The basic offering from Knurr, is available in a family of products ranging from 1.4-24.4kW of output.

Input Phase	Input Amps	Input Voltage	kW Output	# PDUs
1	15	120	1.4	6
1	20	120	1.9	5
1	30	120	2.9	3
1	15	208	2.5	4
1	30	208	5.0	2
3	30	208	8.6	1
3	60	208	17.3	1

Number of Rack PDU's required to supply 8kW of Output Power, based on Input Phase, Input Amps and Supply.

Liebert® MPX™ — Adaptive Rack PDU

Now you can meet the challenge of future connected power requirements with Liebert MPX, the most responsive and adaptive rack PDU available. Thanks to Liebert MPX adaptive technology, you can economically increase the availability of critical systems by leveraging hot-swappable modular power — and manage it all the way to the receptacle level.

Reconfigurable Power Capacity And Distribution

Liebert MPX is the perfect choice to respond to the needs of a growing data center. Relocate or add IT equipment to support changing needs, by easily reconfiguring the power input and distribution.

Liebert MPX Features:

- Industry leading operating temperature — up to 55˚C /131˚F to support hot Internal rack environments.
- Accurate power metering of +/-1% voltage & current for assured oversight.
- Energy and power metering down to the individual receptacle.
- Comprehensive alarming including notification of overloaded branch circuits.
- Environmental sensing with threshold and alarm set-points.
- Notification on the loss or removal of individual rack equipment loads.
- IP consolidation via Rack PDU Array™.

Liebert MPX Benefits:

- Adaptive capacity, distribution, monitoring, control and management of critical devices.
- Flexibility to respond to constant change.
- Buy only what you need and build on your investment.
- Secure communication.

Liebert Power Monitoring Capabilities

The operation of Liebert MPX can be monitored using:

- Liebert RPC Rack PDU Card
- Liebert Nform™ Monitoring System
- Liebert SiteScan® Web Centralized Monitoring System
- Secure Web/SNMP Interfaces
- Liebert RPC-BDM Local Display Module

Scalable Design Allows Onsite Configuration To Fit Immediate IT Equipment Needs

The Liebert MPX Adaptive Rack PDU features essential characteristics to support fast-paced, growing data centers. Hot swappable output power deploys easily to get IT equipment online quickly.

To configure your Liebert MPX, simply follow these easy steps:

1. **Select a Power Rail Chassis** — distributes power and communications to all of the support modules.
2. **Select a Power Entry Module** — connects input power to power rail chassis. May be reconfigured to support changing power needs, single and three phase input. Can be positioned for top or bottom rack entrance.
3. **Select an Input Power Cord** — allows easy power reconfiguration to change input power to meet changing requirements.
4. **Select the Rack PDU Card (Liebert RPC)** — provides upgradable network communications, sensor and local display interface.
5. **Select the Rack PDU Display** — displays power parameters and alarms for up to four Liebert MPX systems. Display orients for horizontal or vertical installation and reading.
6. **Select Branch Receptacle Modules** — provide hot swappable output power connectivity and communications management. May be remotely controlled and metered, providing operator flexibility and allowing increased site security.

Liebert® MPH™

Liebert MPH Features:

- Monitors electrical and environmental parameters with set threshold and alarm tools.
- Industry leading operating temperature—up to 55˚C/131˚F to support hot internal rack environments.
- Controls and manages individual receptacles.
- Predicts overcurrent conditions before they become critical.
- Remote monitoring at strip and branch.
- Card-based communications. Local displays are easily located to suit a crowded and changing rack environment.
- Supports mounting in 19" EIA, 42U rack environments—offered in vertical, zero U and rackmount form factors.
- Allows you to predict failing conditions before they occur and proactively manage connected equipment for maximum uptime.
- Flexible power cord mount is user adjustable for horizontal or vertical orientations.

Part Number	Voltage	Amps	Input Phase	Input Plug	Output Receptacles	Branch Monitored / Receptacle Controlled	Form Factor
MPH-NBR09AXXC30	120	20	1PH	L5-20P	(9) Nema 5-20R	Branch Monitored	Rackmount
MPH-NBR09AXXD30	120	30	1PH	L5-30P	(9) Nema 5-20R	Branch Monitored	Rackmount
MPH-NBR09NXXE30	200-240	20	1PH	L6-20P	(9) C-13	Branch Monitored	Rackmount
MPH-NBR09NXXF30	200-240	30	1PH	L6-30P	(9) C-13	Branch Monitored	Rackmount
MPH-NBV27AXXC30	120	20	1PH	L5-20P	(27) Nema 5-20R	Branch Monitored	Vertical
MPH-NBV27AXXD30	120	30	1PH	L5-30P	(27) Nema 5-20R	Branch Monitored	Vertical
MPH-NBV27NXXE30	200-240	20	1PH	L6-20P	(27) C-13	Branch Monitored	Vertical
MPH-NBV27NXXF30	200-240	30	1PH	L6-30P	(27) C-13	Branch Monitored	Vertical
MPH-NBV27NOXF30	200-240	30	1PH	L6-30P	(21) C-13 & (6) C-19	Branch Monitored	Vertical
MPH-NBV27AXXH30	120/208	30	3PH	L21-30P	(27) Nema 5-20R	Branch Monitored	Vertical
MPH-NBV27NXXH30	120/208	30	3PH	L21-30P	(27) C-13	Branch Monitored	Vertical
MPH-NBV27ANXH30	120/208	30	3PH	L21-30P	(21) C-13 & (6) 5-20R	Branch Monitored	Vertical
MPH-NBV27NOXH30	120/208	30	3PH	L21-30P	(21) C-13 & (6) C-19	Branch Monitored	Vertical
MPH-NCR09AXXC30	120	20	1PH	L5-20P	(9) Nema 5-20R	Receptacle Controlled	Rackmount
MPH-NCR09AXXD30	120	30	1PH	L5-30P	(9) Nema 5-20R	Receptacle Controlled	Rackmount
MPH-NCR09NXXE30	200-240	20	1PH	L6-20P	(9) C-13	Receptacle Controlled	Rackmount
MPH-NCR09NXXF30	200-240	30	1PH	L6-30P	(9) C-13	Receptacle Controlled	Rackmount
MPH-NCV27AXXC30	120	20	1PH	L5-20P	(27) Nema 5-20R	Receptacle Controlled	Vertical
MPH-NCV27AXXD30	120	30	1PH	L5-30P	(27) Nema 5-20R	Receptacle Controlled	Vertical
MPH-NCV27NXXE30	200-240	20	1PH	L6-20P	(27) C-13	Receptacle Controlled	Vertical
MPH-NCV27NXXF30	200-240	30	1PH	L6-30P	(27) C-13	Receptacle Controlled	Vertical
MPH-NCV27NOXF30	200-240	30	1PH	L6-30P	(21) C-13 & (6) C-19	Receptacle Controlled	Vertical
MPH-NCV27AXXH30	120/208	30	3PH	L21-30P	(27) Nema 5-20R	Receptacle Controlled	Vertical
MPH-NCV27NXXH30	120/208	30	3PH	L21-30P	(27) C-13	Receptacle Controlled	Vertical
MPH-NCV27ANXH30	120/208	30	3PH	L21-30P	(21) C-13 & (6) 5-20R T-Slots	Receptacle Controlled	Vertical
MPH-NCV27NOXH30	120/208	30	3PH	L21-30P	(21) C-13 & (6) C-19	Receptacle Controlled	Vertical

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